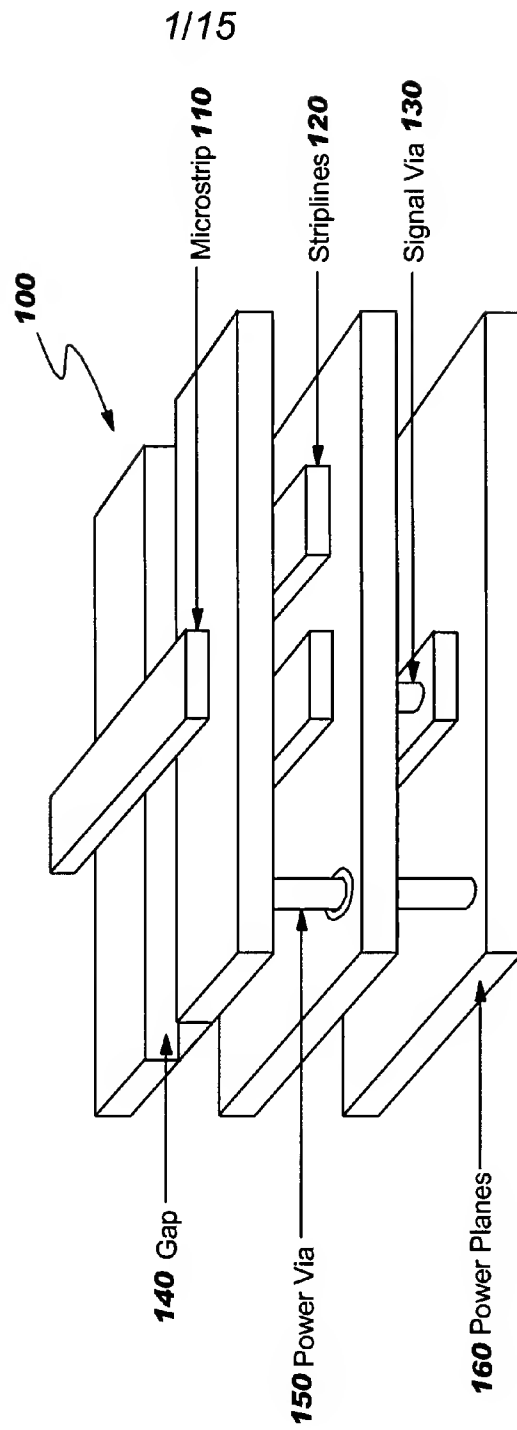


FIG. 1

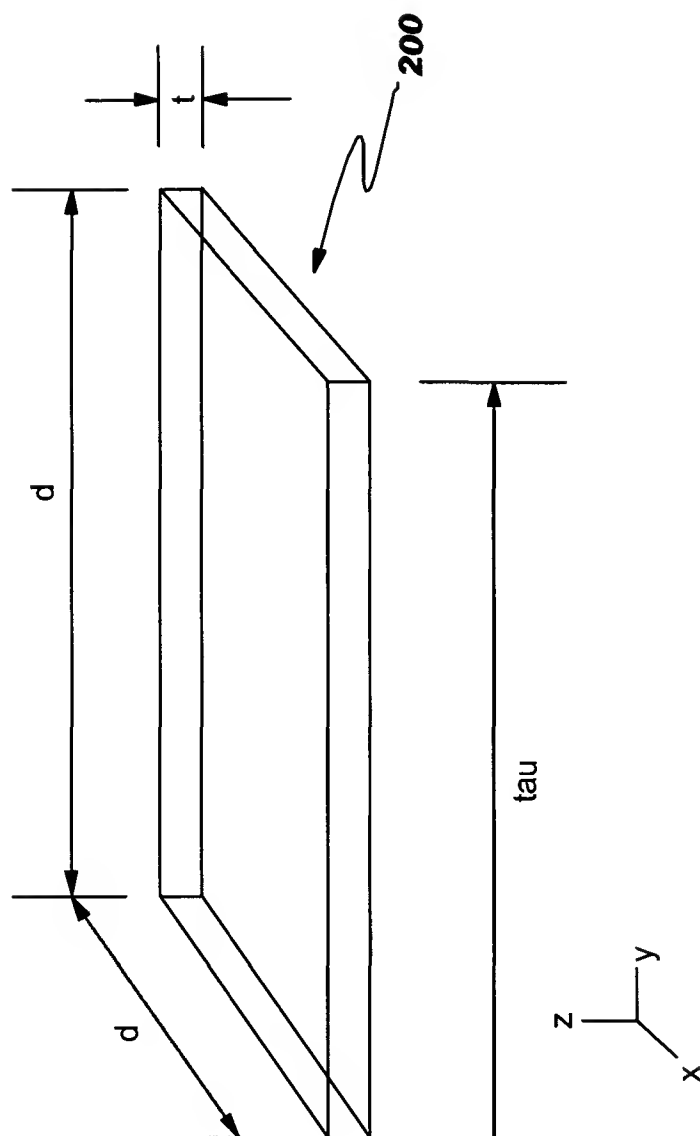
## Common Microelectronic Package Structures



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FIG. 2

Cell Dimensions



Intra-Cell Power Vias Equivalent

FIG. 3A

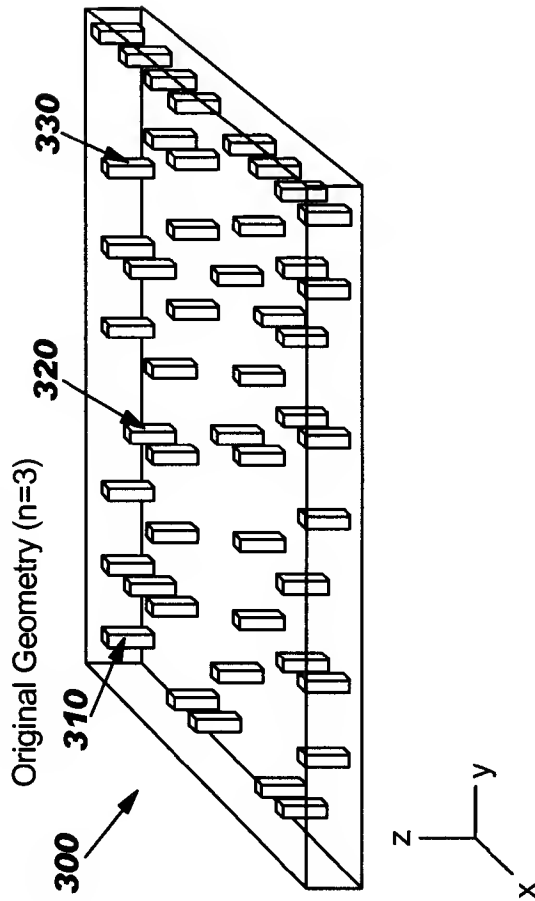


FIG. 3B

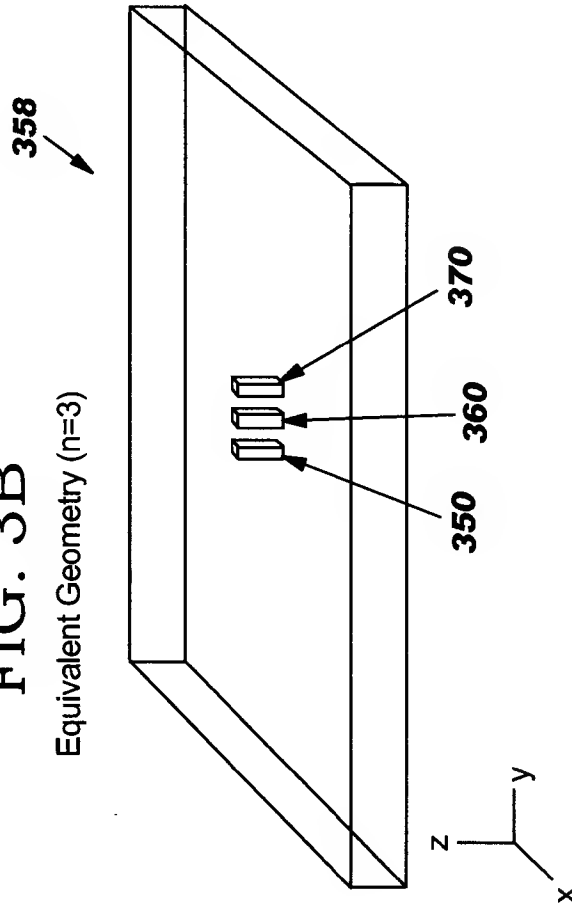


FIG. 3C

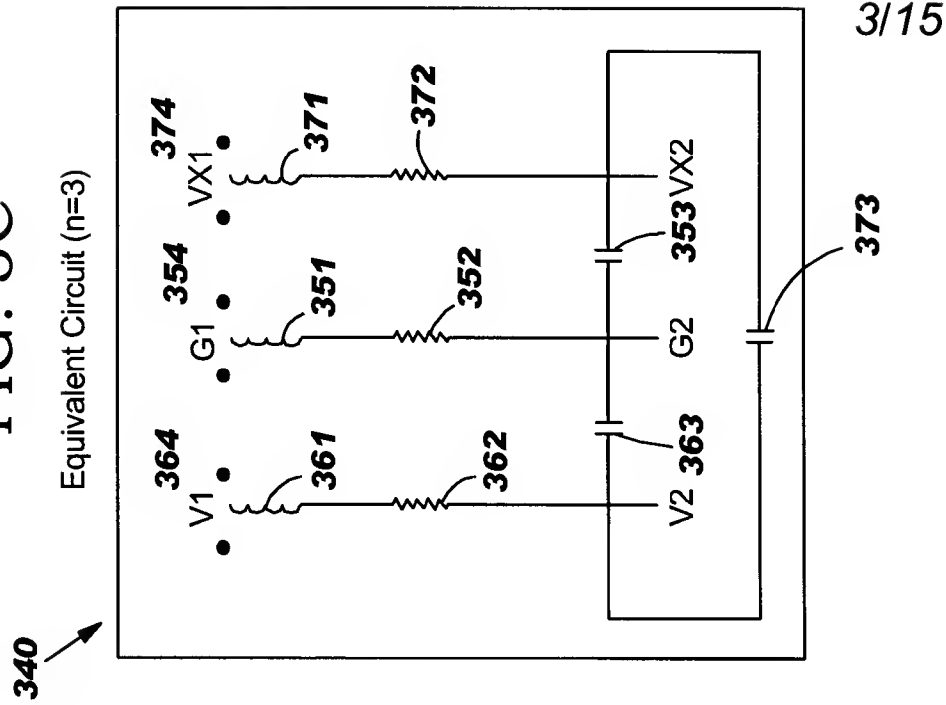


FIG 4A  
Adjacent Cell Interaction (East edge only, n=3)

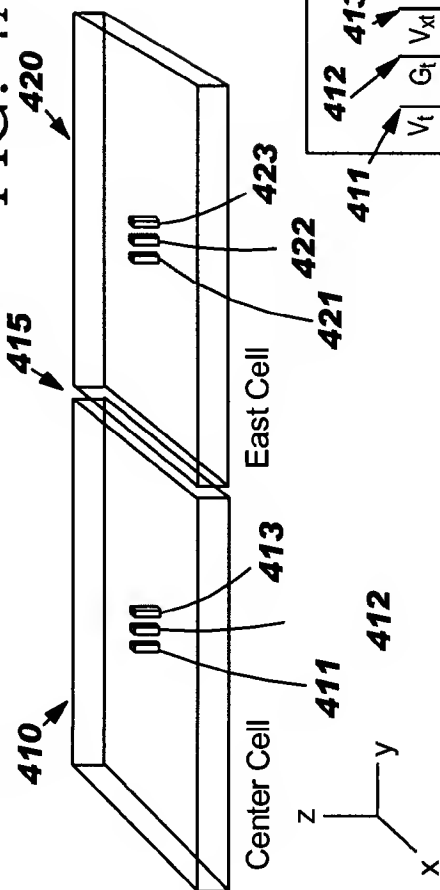
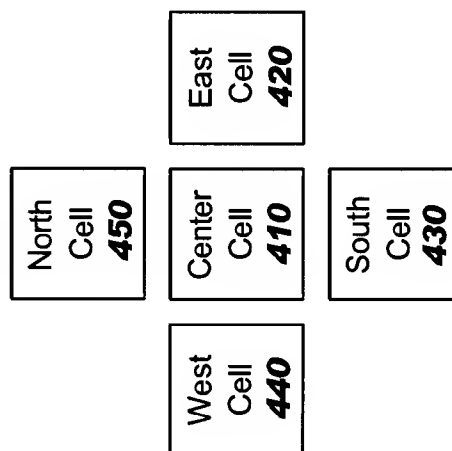


FIG. 4B

Top View (all edges)

East  
Cell  
420

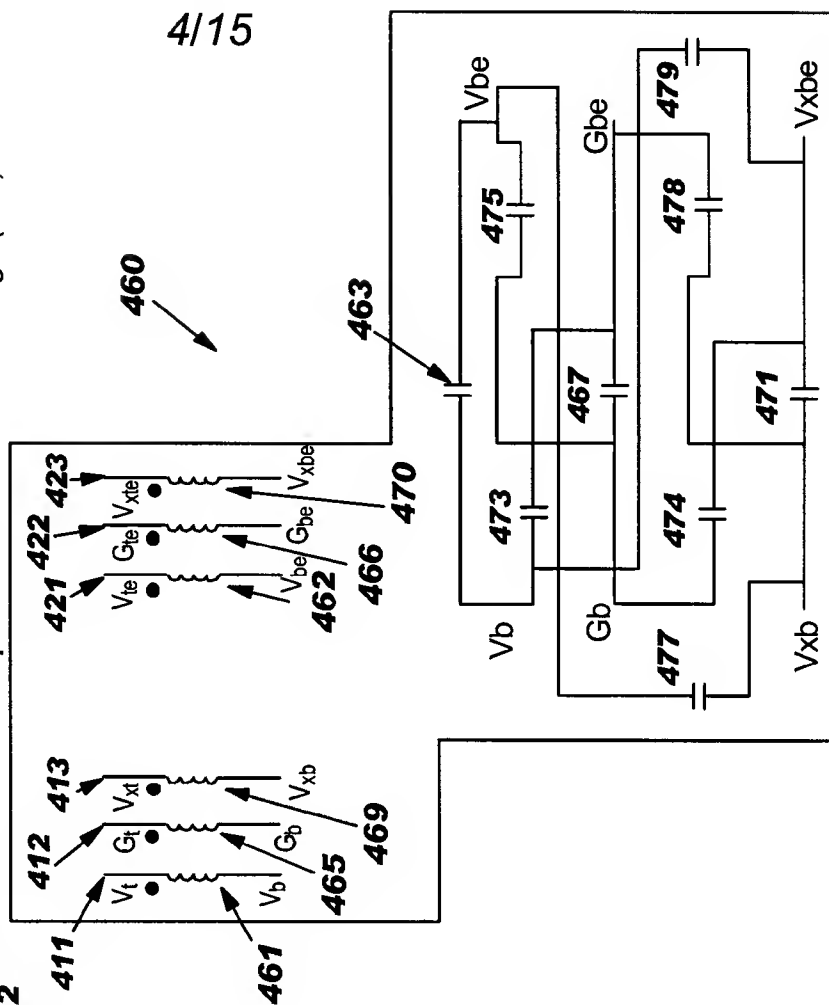
Center  
Cell  
**410**

outh  
Cell  
130West  
Cell  
**440**

## Inter-Cell Power Vias Equivalent

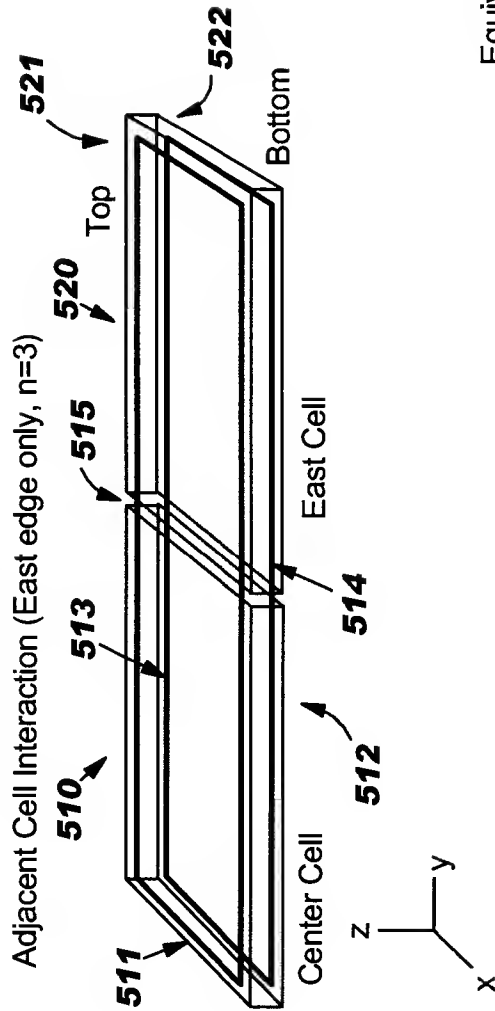
FIG. 4C

### Equivalent Circuit for Each Edge (n=3)



Intra- and Inter-Cell Power Plane Equivalent

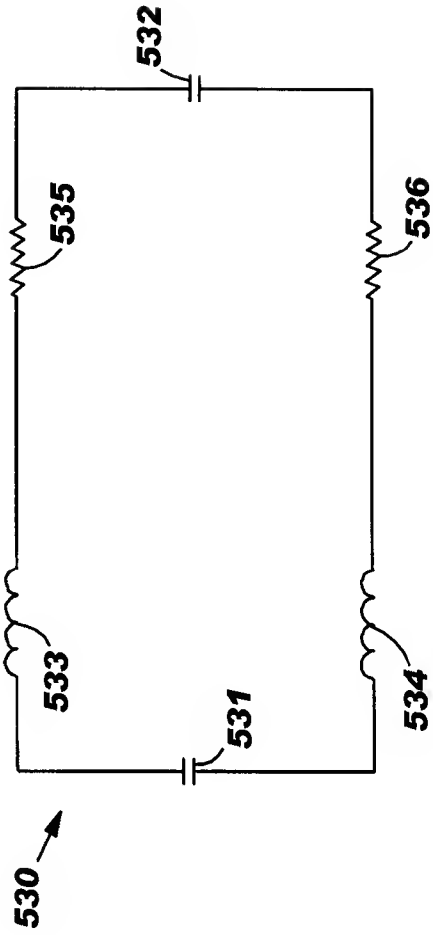
FIG. 5A



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FIG. 5B

Equivalent Circuit for Each Edge ( $n=2$ )



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FIG. 5C

Two RLC equivalents of power-plane cell

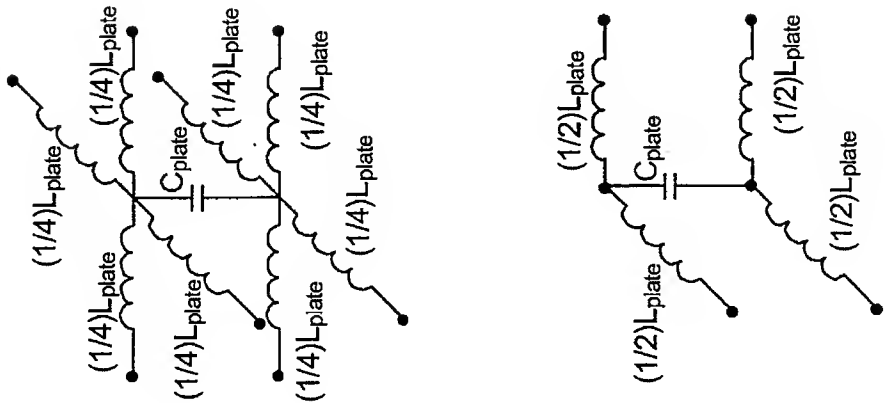
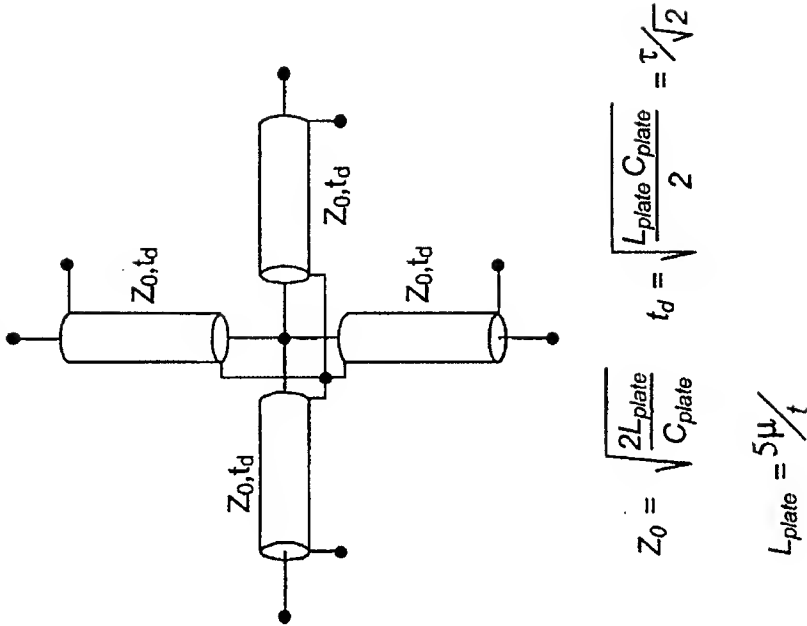


FIG. 5D

Transmission-line equivalent  
of power-plane cell



Intra-Cell Signal Vias Equivalent

FIG. 6A  
Geometry (n=28)

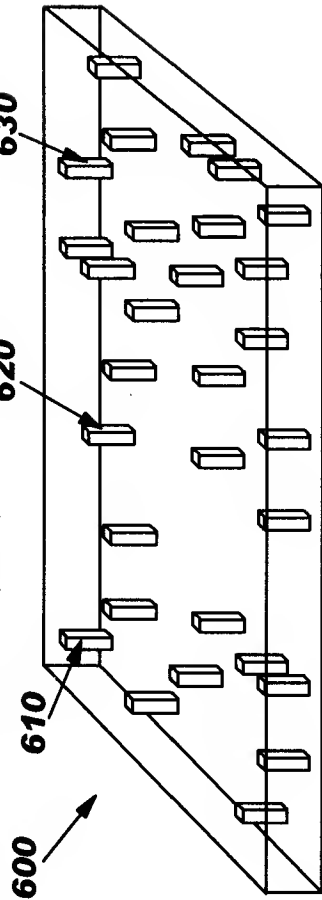


FIG. 6B  
Geometry (n=28)

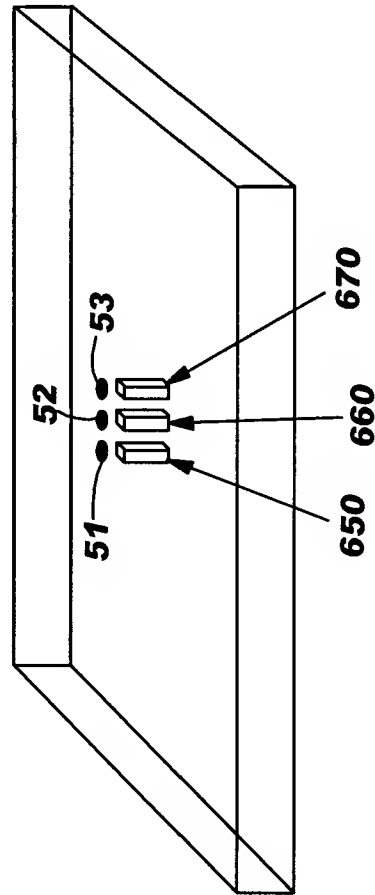
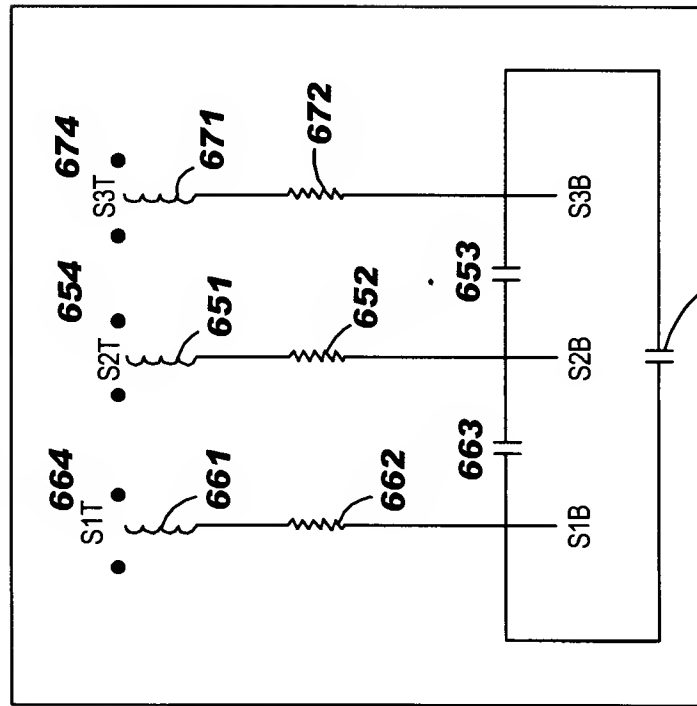


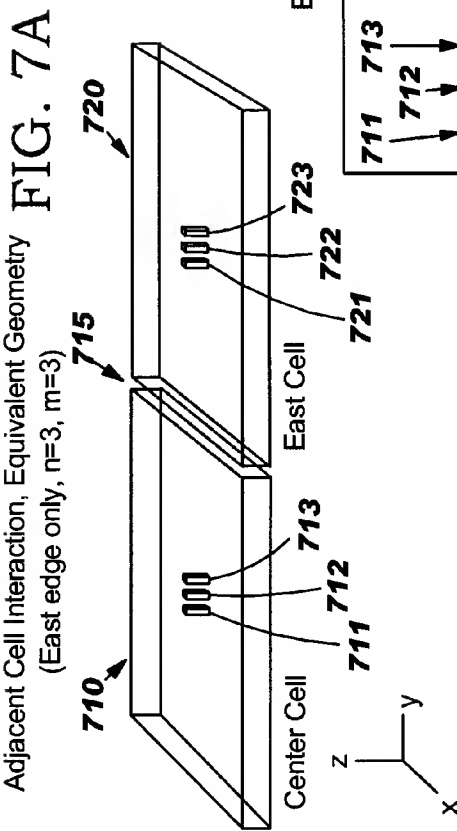
FIG. 6C

Equivalent Circuit (n=3)



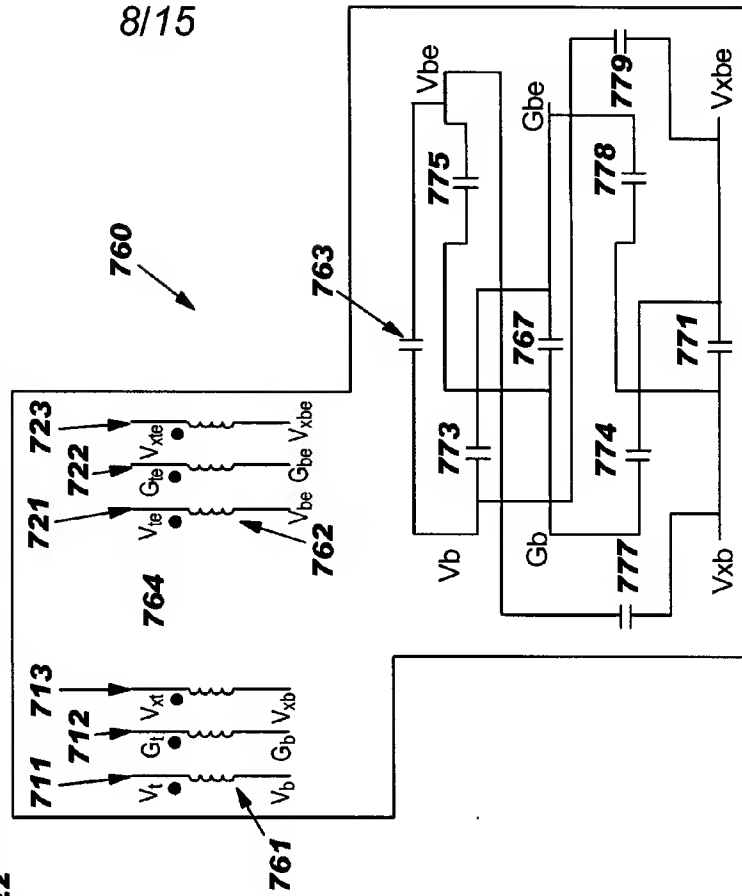
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Adjacent Cell Interaction, Equivalent Geometry  
(East edge only,  $n=3$ ,  $m=3$ )



**FIG. 7B**

Equivalent Circuit at Adjacent Edge ( $n=3$ ,  $m=3$ )



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Inter-Cell Signal  
Vias Equivalent



Intra-Cell Signal and Power-Supply Vias Equivalent

FIG. 8A

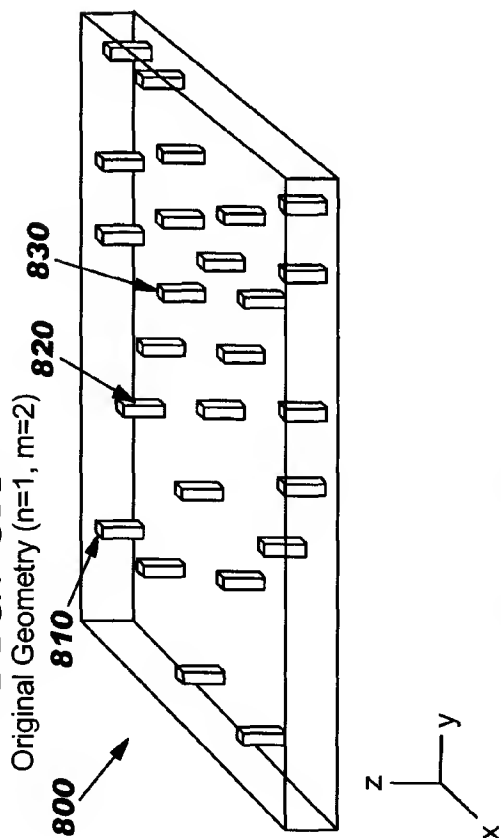


FIG. 8B

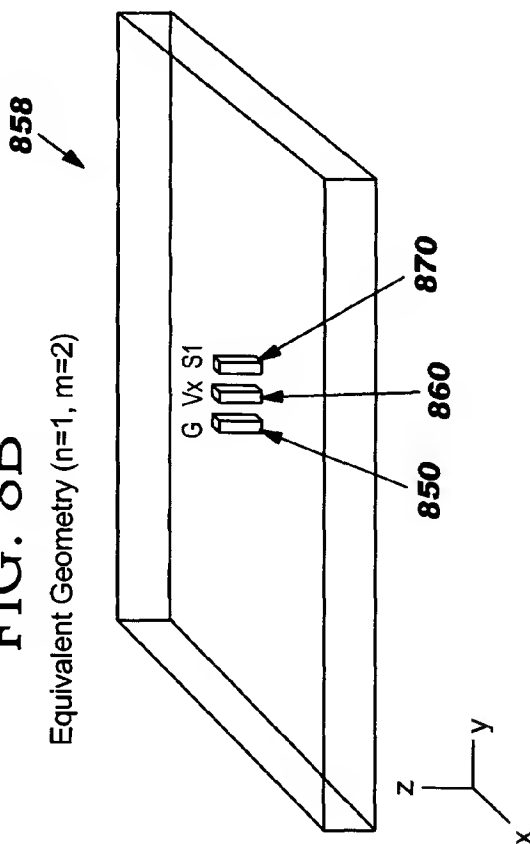
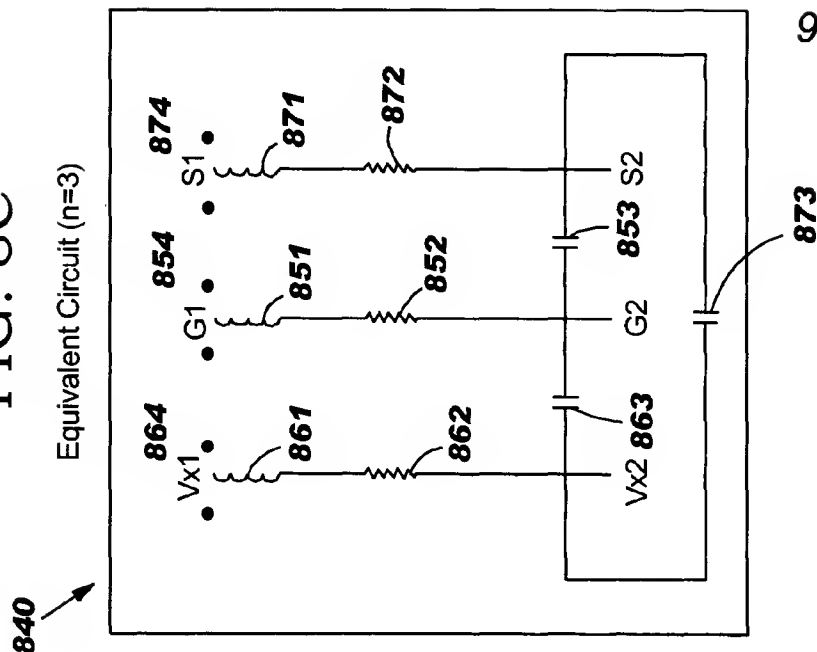
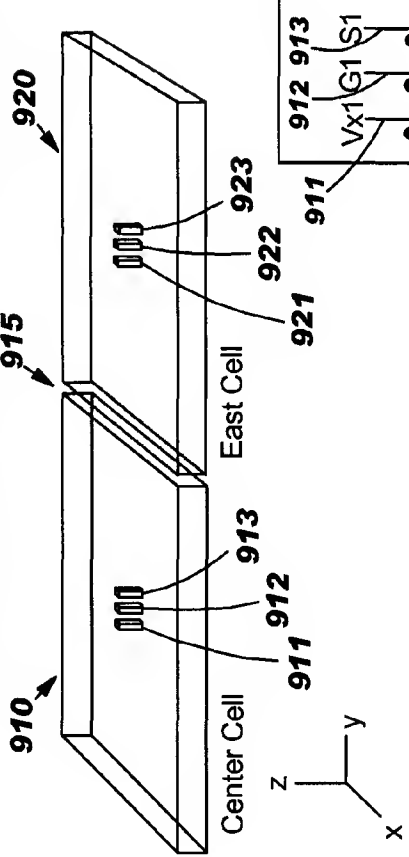


FIG. 8C



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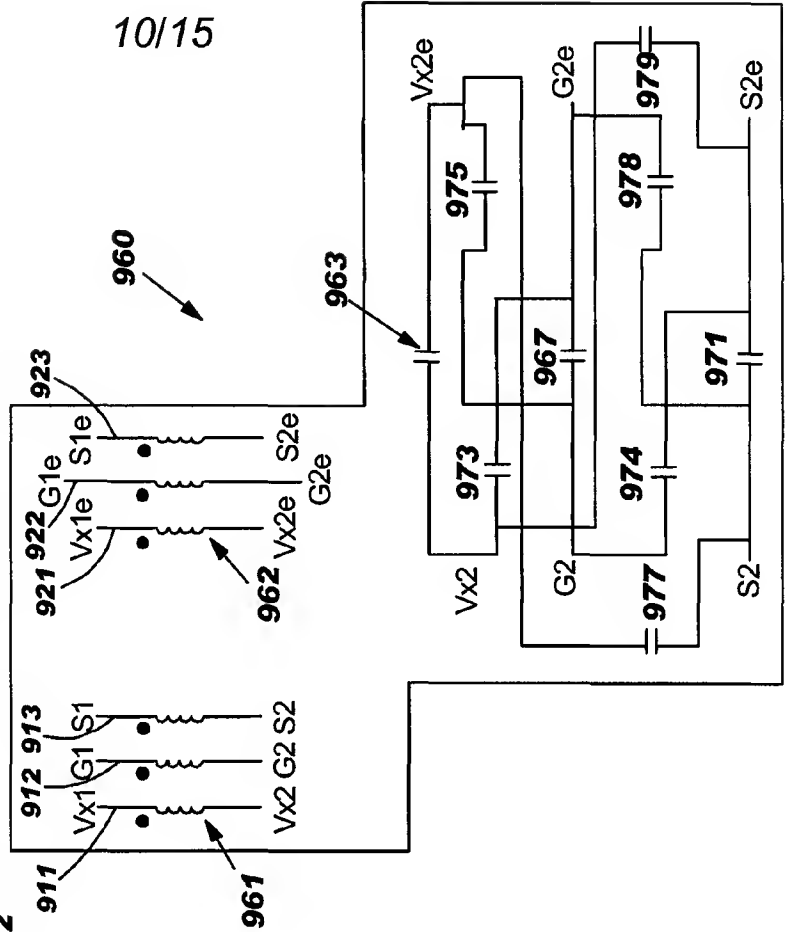
Adjacent Cell Interaction, Equivalent Geometry  
(East edge only,  $n=3$ ,  $m=3$ )



Inter-Cell Signal and Power-Supply  
Vias Equivalent

**FIG. 9B**

Equivalent Circuit at Adjacent Edge ( $n=3$ ,  $m=3$ )



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Intra-Cell Signal Wires Equivalent

FIG. 10A

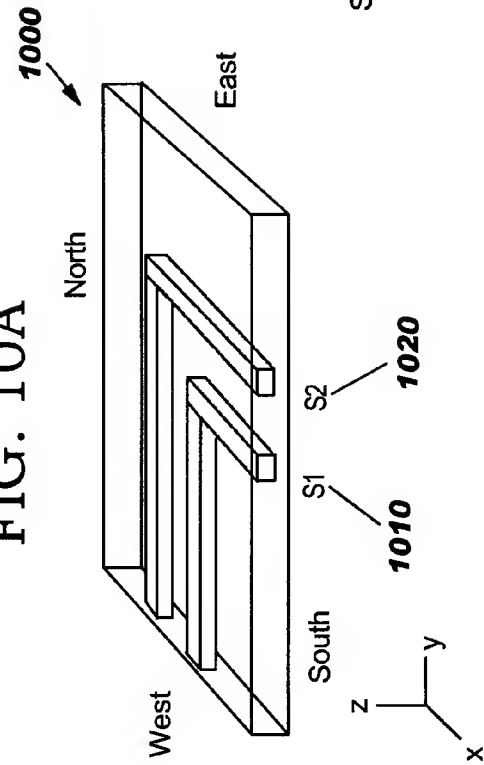
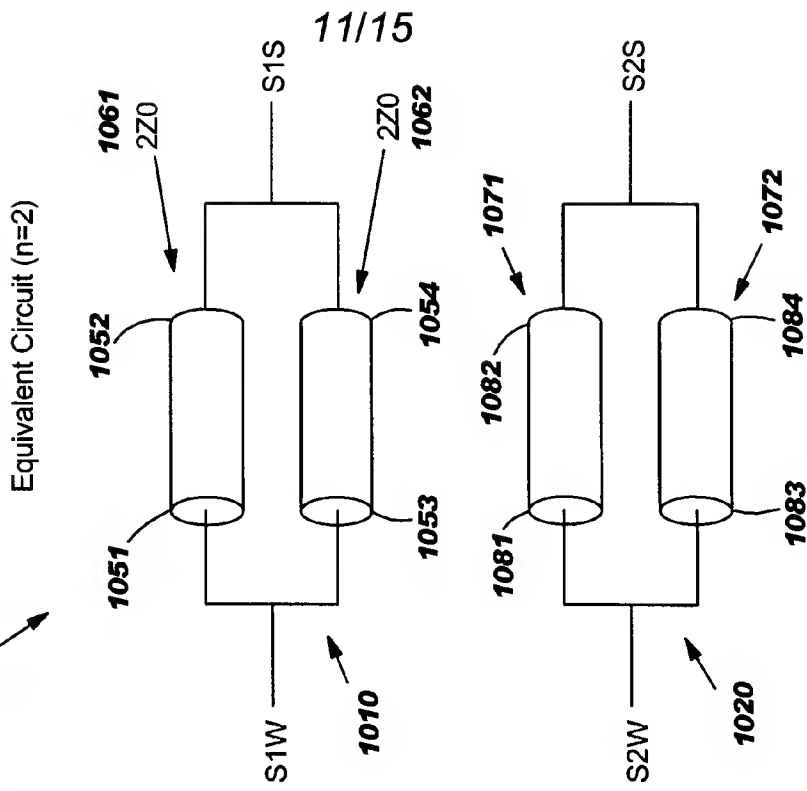


FIG. 10B



Intra-Cell Signal Wires to Power-Plane Equivalent

FIG. 11A

Geometry ( $n=2, m=2$ )

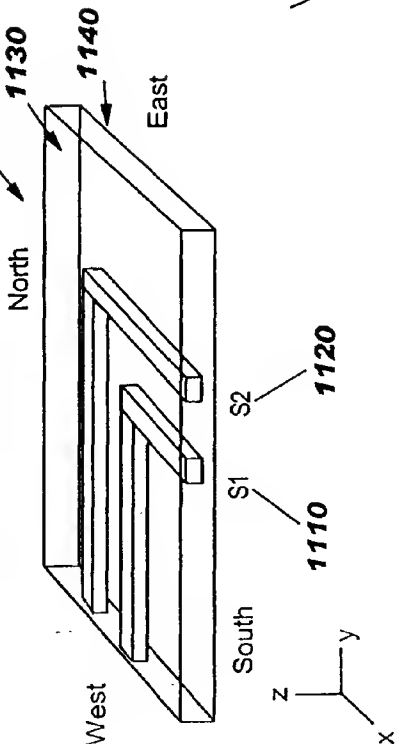
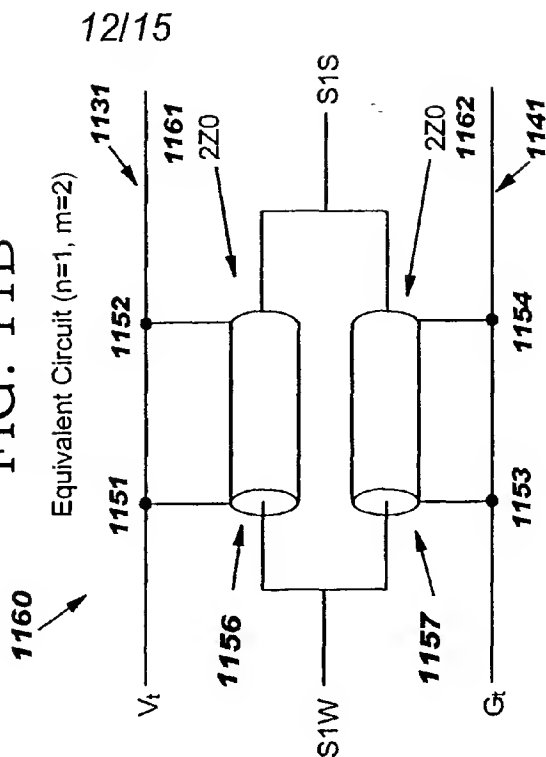
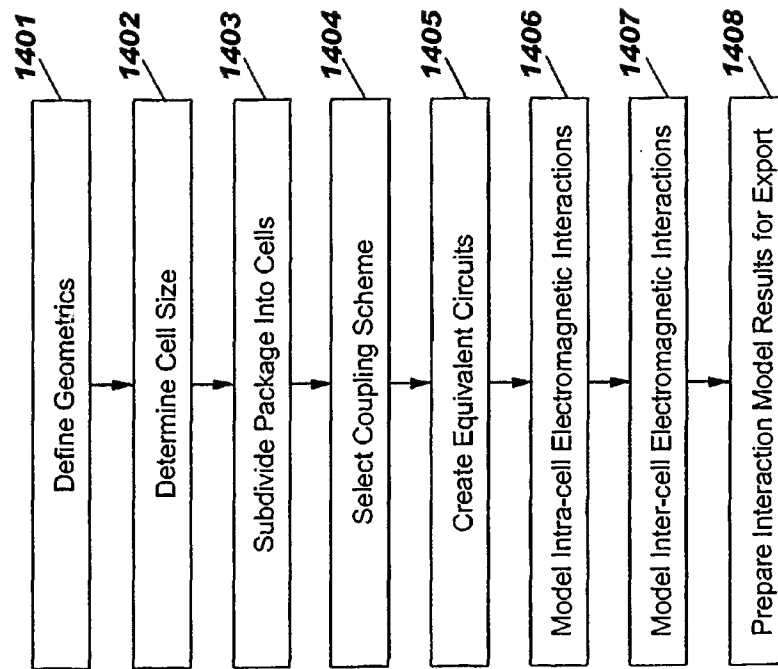


FIG. 11B

Equivalent Circuit ( $n=1, m=2$ )



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**FIG. 12**  
(Flow Chart) 1400

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FIG. 13A

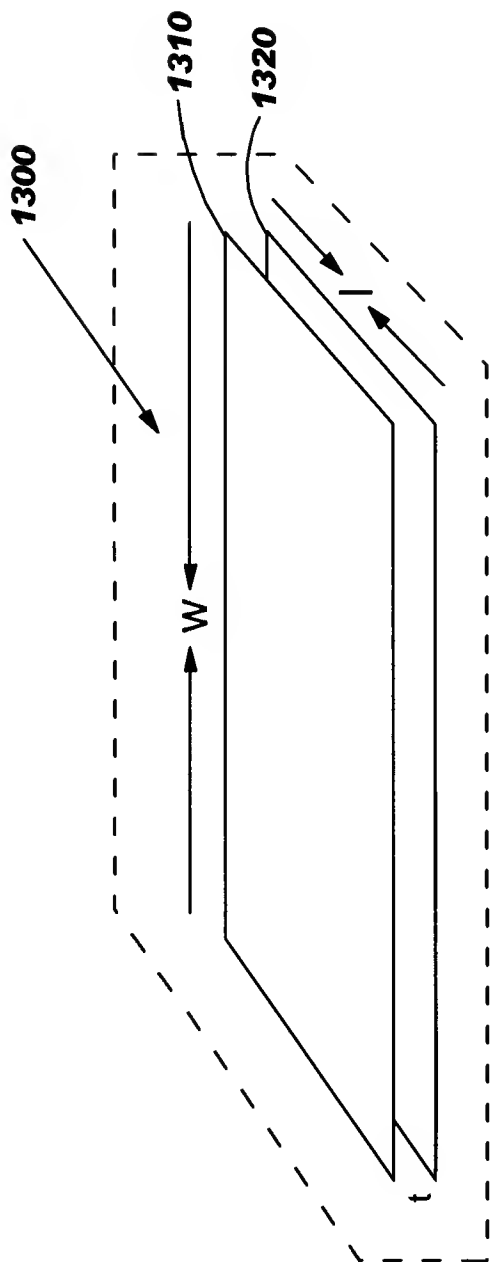
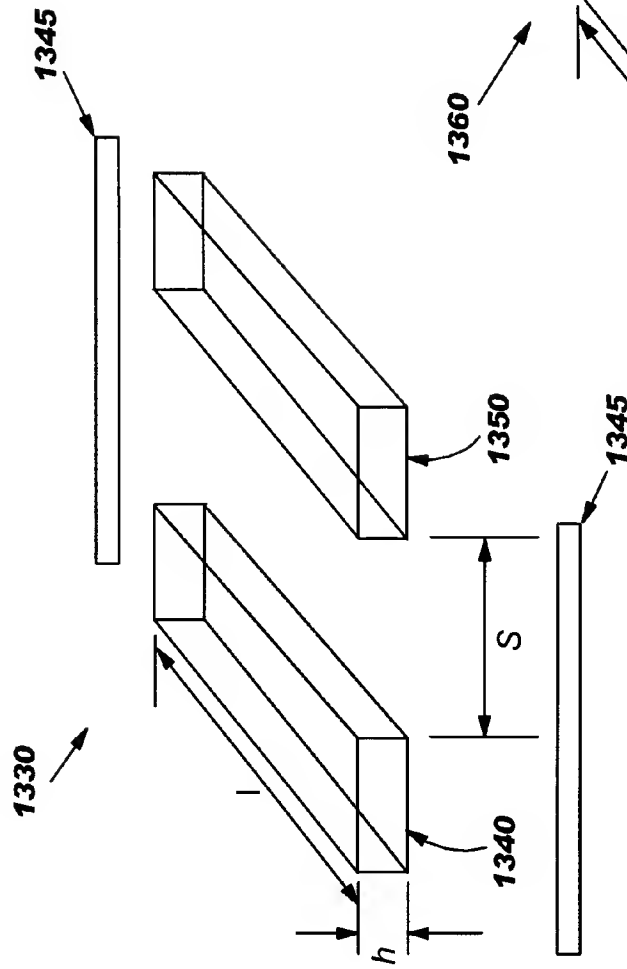


FIG. 13B



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FIG. 13C

